

(No Model.)

G. D. STRAYER.
-ADDING MACHINE.

No. 514,785.

Patented Feb. 13, 1894.

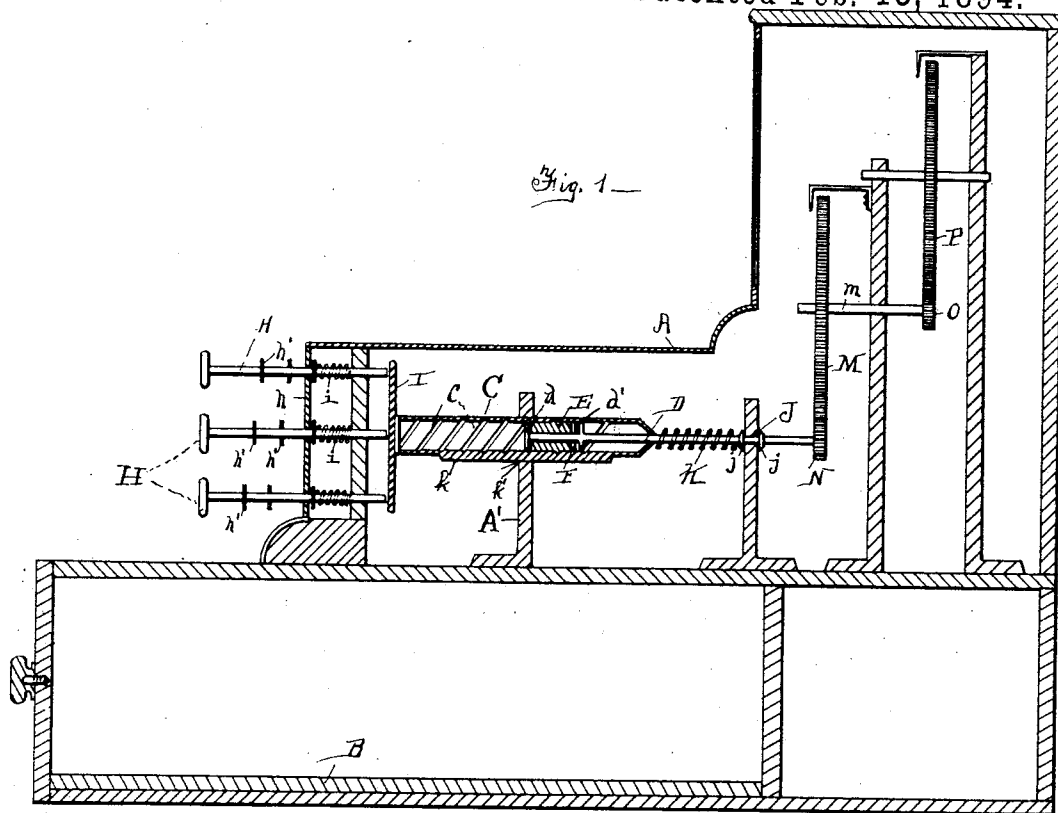


Fig. 2—

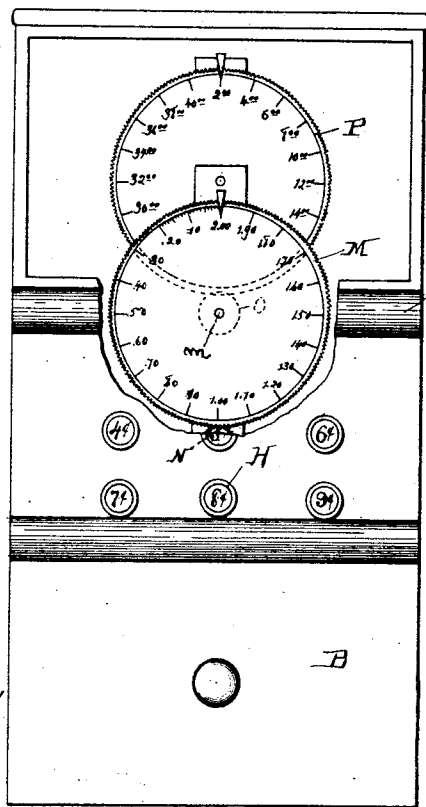
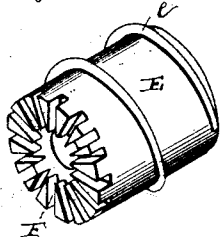


Fig. 3—



WITNESSES

Geo. M. Tuttle
Philip Masi.

Fig. 4—

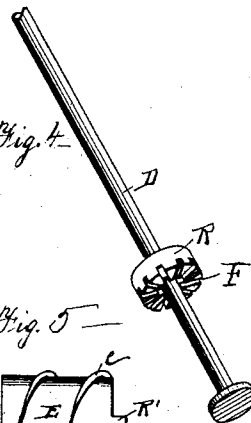
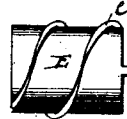


Fig. 5—



INVENTOR

G. D. Strayer
by C. W. Anderson.
his Attorney

UNITED STATES PATENT OFFICE.

GEORGE D. STRAYER, OF EAST STROUDSBURG, PENNSYLVANIA.

ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 514,785, dated February 13, 1894.

Application filed August 31, 1893. Serial No. 484,482. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. STRAYER, a citizen of the United States, and a resident of East Stroudsburg, in the county of Monroe and State of Pennsylvania, have invented certain new and useful Improvements in Adding-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical longitudinal section of the invention applied to a cash register. Fig. 2 is a front view of same with the casing partly broken away. Fig. 3 is a detail view in perspective of the ring or cylinder. Fig. 4 is a detail view in perspective of spindle with collar R and Fig. 5 is a front view in detail of the cylinder in modified form.

This invention has relation to certain new and useful improvements in adding machines, and is designed to provide simple, accurate, and practical means of this character; and the invention consists in the novel construction and combination of parts, all as herein-after described and pointed out in the appended claims.

Referring to the accompanying drawings illustrating the invention, the letter A indicates a frame or casing, which may be of any suitable form or character, and which may have in its lower portion a reciprocating cash drawer B.

C designates a cylinder formed with an internal spiral thread or groove *c*, and supported in the frame in such a manner as to be capable of an endwise reciprocating movement. In the drawings this cylinder is shown as being supported in horizontal position in that portion of the frame above the cash drawer, but I do not limit myself to such arrangement as it is obvious that it might be supported in vertical position, and in other relations to the frame.

D designates a shaft or spindle, which at one end portion enters the cylinder C, and carries within the cylinder a screw-threaded

cylinder E which has spiral flanges or projections *e* see Fig. 3 arranged to fit the spiral thread or groove *c* of the cylinder. Said cylinder E is normally free to turn on the shaft or spindle D, and is capable of a limited endwise movement thereon between suitable stops *d* and *d'*. In one end of said ring or cylinder is formed a series of radial grooves F, parallel with the axis thereof, and designed to engage with the arms or stops *d'* upon the proper endwise movement of the said cylinder.

H designates a series of reciprocating keys, the stems of which are shown as sliding through a bearing plate *h* in the end of the casing, and arranged, upon proper endwise movement, to contact with a push plate I secured to the end of the cylinder C. The endwise movement of the said keys is limited by a stop *h'* upon the stem of each, and these stops are graduated in their positions, so that each key is capable of a different degree of movement, corresponding in each to the value of the key. Springs *i* in connection with the stems of the keys, serve to return them to their normal positions after operation.

Affixed to the cylinder C is a feather *k* which is arranged to slide, as the cylinder is moved, in a notch or groove *k'* in the frame piece *a'* and serves to prevent any rotary movement of the cylinder. A spring K bearing against the inner end of the cylinder returns it to its normal position after operation. Other suitable means may, however, be provided for returning, and checking the rotary movement of the cylinder.

The shaft or spindle D has a bearing in an arm of the frame at J, and stops *j* may be employed to prevent endwise movement of said shaft or spindle. On the inner end of said shaft or spindle is a pinion N, which in the drawings is shown as gearing with a toothed dial wheel M, in the rear portion of the casing, the shaft *m* of the latter carrying a pinion O which gears with a second dial wheel P, for registering multiples of the number shown on the wheel M. I do not, however, confine myself to any particular arrangement of gear and dial wheels, as I may use any suitable arrangement capable of being geared to the shaft or spindle D.

The operation is as follows: Any one of the keys H being operated to its full endwise movement, its stem acts upon the push plate I, and moves the cylinder endwise a distance 5 corresponding to the value of that particular key. As the cylinder commences to move, it carries with it the cylinder E, which at this time is free to turn upon the shaft or spindle D, until such time as its grooves F are engaged by the arms or projections G, when 10 the said shaft is caused to rotate with the cam ring, the rotation of the latter being caused by their engagement with each other as described, the cylinder being fixed against rotation; and this movement of the shaft or 15 spindle is transferred to the registering gear through the pinion N. The key being released, the spring K, returns the cylinder to its original position, and at the commencement of the return movement, cylinder E is 20 disengaged from the shaft or spindle D, so that the latter is not rotated. Inasmuch as each key is capable of a different degree of movement, it follows that the operation of 25 each causes the registration of a different amount, the movement of each being so graduated as to cause it to register the amount marked thereon.

The keys may be marked, and the mechanism graduated for any desired system of rotation. 30

Two or more of the cylinders, each with its own group of keys, and operated mechanism, may be arranged side by side, or otherwise, 35 in the same frame or case, if desired.

In place of the grooves F, and the arms G adapted to engage therewith, as before described, I may place a radially grooved collar R upon the shaft or spindle D, arms R' being 40 provided upon the cylinder E for engagement therewith, as shown in Fig. 5.

Having thus described my invention, what I believe to be new, and desire to secure by Letters Patent, is—

45 1. In an adding machine, the combination with a group of endwise slidable keys, and stops on said keys whereby each key representing a different value has a different degree of movement, a hollow endwise movable, 50 non-rotary cylinder common to all of said keys and actuated by any one thereof, a spiral thread or groove on the interior of said cylinder, a rotary but non-endwise movable shaft or spindle extending within said cylinder, and a threaded cylinder carried by said 55 shaft or spindle and fitting the internal thread or groove of the outer cylinder, substantially as specified.

2. In an adding machine, the combination with an endwise movable, and non-rotary cylinder, having an internal helical thread or groove, of a shaft or spindle partially within 60 said cylinder, a screw-threaded cylinder on said shaft within said cylinder, and fitting the internal thread or groove thereof, said threaded 65 cylinder being normally loose on said shaft or spindle, and means for causing the engagement and disengagement of said ring from said shaft or spindle upon the endwise movements of said non-rotary cylinder, substantially 70 as specified.

3. In an adding machine, the combination with an endwise movable, non-rotary cylinder, having an interior helical groove or thread, of the rotary shaft or spindle partially 75 within said cylinder, the helically flanged, radially grooved cylinder normally loose on said shaft or spindle and fitting the groove or thread of said non-rotary cylinder, and projections on said shaft or spindle for engagement 80 with the grooves of said cylinder, substantially as specified.

4. In an adding machine, the combination with a series of independently movable sliding keys, and means for causing each key 85 to have a different degree of movement, of a push plate arranged in position to be acted upon by any one of said keys, the non-rotary endwise movable cylinder attached to said push plate, said cylinder having interior, helical 90 grooves or threads, the helically flanged, radially grooved rotary cylinder in said cylinder, the rotary shaft carrying said ring and having means for engagement with the grooves 95 thereof, and suitable adding or registering mechanism geared to said shaft, substantially as specified.

5. In an adding machine, the combination of a group of independently movable keys, their graduated stops, and returning springs, 100 the cylinder having the internal helical grooves or thread, its push plate, the rotary shaft or spindle, the helically flanged, radially grooved rotary cylinder within said cylinder, and capable of a limited endwise movement upon said shaft, means on said shaft 105 for engagement with said rotary cylinder, the spring for returning said cylinder, and adding or registering mechanisms, substantially as specified. 110

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE D. STRAYER.

Witnesses:

JOHN F. VAN GORDEN,
W. H. VOSS.